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Review

Analysis of the TCM theory of traditional Chinese health exercise

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Abstract

The traditional Chinese medicine (TCM) theory of traditional Chinese health exercise (TCHE) is analyzed. The effect of meridians and acupoints contained in TCHE is summarized, the treatment methods of tonifying deficiencies and reducing excesses applied in TCHE are discussed, the regulation of Zang-fu organs are emphasized, and the leading role of Qi is introduced. The exercise prescription and proper timing of TCHE are described and reported. TCHEs, such as Baduanjin, Liuzijue, and Tai Chi, possess strong TCM characteristics.

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1. Introduction

Through traditional Chinese health exercises (TCHEs) such as Tai Chi,¹ Baduanjin Qigong,² Liuzijue (Six-Word Qigong) and others, the body's muscles and tendons are activated, the breath is controlled, and the mind or “shen” is nourished through resting meditation. These exercises help one's body to dredge the meridians and collaterals, promote the circulation of blood, and regulate the internal organs in order to strengthen one's physical fitness³ and improve the quality of life.⁴ TCHE has both firm and flexible qualities, and is thus suitable for both the old and the infirm. Its theory has obvious features of traditional Chinese medicine (TCM), such as the application of meridians and acupoint theory, the regulation of Qi, attaching importance to the concept of wholism, and

treatment differentiation based on different signs and symptoms.

2. Effects of TCHE on meridians and acupoints

TCM hypothesizes that the meridian system is the path to transport Qi and blood of the body, and connects the Zang-fu organs, surface, and different parts of the body. TCM's meridian theory is unique. Importance is first placed on the idea that different meridians serve different roles for the body. For instance, the Ren meridian manages the uterus and gestation, whereas the Yangming meridians are filled with plenty of Qi and blood. Incorporating these ideas from TCM's meridian theory, TCHE allows the body to accomplish therapeutic effects through the body's own capabilities via exercise.⁵

The Ren and Du meridians distribute geographically on the midline of the abdomen and back, respectively. The Ren meridian administers the whole body's Yin, and is known as the “sea of Yin” meridian. The Du meridian supervises the whole body's Yang, and is known as the “sea of Yang” meridian. TCHE places importance on exercising the Ren and Du meridians. For example, in Baduanjin, there is an exercise called “both hands catch the feet to strengthen waist and tonify kidney” in which one holds the bottom of the foot with both hands.⁶ This exercise is good at regulating the Ren and Du

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meridians, and is practiced for disease prevention. The mechanism is that it stimulates the Ren and Du meridians and their points through flexion and extension movements.

It is also important to connect the Ren and Du meridians in TCHE. There are many ways to maintain the circulation between the Ren and Du meridians in Tai Chi. When practicing Tai Chi, the tip of the tongue should touch the palate in order to stimulate two acupoints — Jinjin and Yuye (EX-HN11, 12), which are located bilaterally on either side of the lingual frenum. This helps to produce enough saliva to moisten the mouth. In the meantime, the head posture should be kept such that the Baihui (GV20) (vertex) area appears to be lifted with a ring, in order to keep GV20 and Huiyin (GV1) in the same perpendicular line, which improves the communication between the Ren and Du meridians. In addition, through meditation, abdominal breathing techniques are used to “breathe and lead Qi into the Dantian”. In TCM, the lower Dantian’s region is equal to the Shimen (CV5).⁷ Finally, during the practice of Tai Chi, focus should be placed on the Mingmen (GV4), imagining the body as a bow with the waist as the handle of the bow and the Dazhui (GV14) and Chang Qiang (GV1) as the two ends of the bow. The acupoints GV4, GV14, and GV1 belong to the Du meridian.⁸

TCHE has a long history during which it incorporated the original witch dance, Daoyin inducing energy flow, inner alchemy, Qigong, and health Qigong stages,⁹ and focuses on one’s essence, the Qi and spirit, as well as training both the body and the mind, and both the interior and the exterior. This represents the holism concept. There are many different kinds of TCHE with various effects, for instance, curing disease^{10,11} and improving physical ability. Acupoints, where the Qi of the organs and the meridians infuse into the surface of the body, can reflect disease and be used for treatment. These practice methods of TCHE are based on acupoints. In traditional Daoyin, the acupoints theory is combined with exercises and regular expiration and inspiration to treat diseases and to strengthen the body. Dantian Qigong¹² can be applied when there is malaise and fatigue, memory decline and insomnia. For treating colds in a windy or cold environment, one can massage the Fengfu (GV15) for 100 times, while adjusting the breath and holding the Qi at Qihai (CV6), which is located 1.5 cm below the umbilicus (Bao Sheng Mi Yao by Shiheng Cao, the Ming dynasty). Simiao Sun’s practice of Daoyin often used the middle finger to knead Jingming (BL1) to protect the vision, and used the hand to press Taiyang (EX-HN), plus the eyes, forehead and bilateral auricular for anti-aging (*She Yang Zhen Zhong Fang* by Simiao Sun, the Tang dynasty).¹³

3. The reinforcing and reducing aspects of TCHE

Asthenia syndrome, a special term used to describe a physical condition in TCM, relates to the deficiency of healthy Qi. The main pathogenic reaction is deficiency of healthy Qi which manifests as a reduction in essence, Qi, blood, and body fluids, with the corresponding hypofunction of the organs and meridians and a reduction in disease-resistance. This can be observed in different kinds of deficiency syndromes, such as

“Qi deficiency” which manifests as tiredness and lacking the strength to speak and work; “blood deficiency” which manifests as a yellowish face, dizziness and palpitation; “Yin deficiency” which manifests as a hot sensation in the palms and soles, insomnia and night sweating; and “Yang deficiency” which manifests as coldness in the limbs and a clean but large amount of urine.

Different exercises are recommended for people with different deficiency conditions according to TCM. For heart disease patients with Yin deficiency, Tai Chi¹⁴ and saliva swallowing Qigong exercises are more suitable to tonify the liver and kidney, comparing to strenuous exercises. Tai Chi exercise is mainly recommended to Yin deficiency persons, because Tai Chi can inhibit excessive Yang by supporting healthy energy, calm their irritable mood by regulating their spirit, rebalance the Yin and Yang to improve the relative Yang hyperactivity, and harmonize and regulate the Qi and blood to compensate for the depletion of the blood and body fluids.¹⁵

On the other hand, for heart disease patients with Yang deficiency, breathing exercises¹⁶ are selected to strengthen the Yang based on their preferred activity and physical capacity. One must be persistent in maintaining the exercises throughout the four seasons and practice 1–2 times a day, because “Moving helps the production of Yang”.

Reinforcing Daoyin, one of the TCHE exercises, is aimed at deficient patients with the purpose of anti-aging and taking care of one’s essence, Qi and spirit, using different proportions of body and breathing exercises. There are different and rich comments from various historically famous founders on reinforcing Daoyin.¹⁷

Liuzijue is a type of reinforcing Daoyin that originated from *Hu Jian Su Zhang-Fu Daoyin* by Yin Hu in the Tang dynasty. It has 12 actions which distribute respectively to the six interior organs: lung, heart,¹⁸ liver, spleen, kidney, and gallbladder. The heart Daoyin, for example, suits heart deficiency conditions resulting in palpitation, insomnia, and forgetfulness. The lunar April and May¹⁹ are the best time for this exercise of sitting cross-legged, breathing deeply from the nose and exhaling by saying the “He” sound. The hands may be kept clenched and stretched out to the right or left sides, lifted up as if holding a heavy stone (with one hand), or crossed while stepping on them while holding the breath.

Asthenia syndrome, the opposite of deficiency, means an excess of the main pathogenic factors in TCM which manifest as a kind of excess syndrome resulting from the intense struggle between strong and healthy versus pathogenic Qi and the obvious resulting reactions. Patients with the Yang excess²⁰ should do more exercises to excrete the Yang Qi.

Reinforcing Daoyin is aimed at deficient people, whereas treating Daoyin is aimed at people who are ill. Besides these types of Daoyin, there is also a kind of general Daoyin, which focuses on fortifying the body with just the right amount of exercise and without an obvious tendency towards tonifying or reducing. The representatives are Wuqinxì²¹ and Yijinjing,²² which have different forms of exercise consisting of body movements combined with breathing and meditation.

4. Regulation of Zang-fu organs with TCHE

The theory of Zangxiang²³ is a TCM theory with distinctive characteristics. The internal organs perform their own functions such that the whole organism, the human body, maintains a uniform state. Since there exists an internal influence and restrictions among each organ, damage to one organ can affect the relevant five-sense organs and the nine orifices of the human body. Spleen dysfunction manifests as a poor appetite, anemia, wasting, and diarrhea, since this organ controls the transformation of food and water, circulates the blood, and is related to the muscles of the limbs and mouth.²⁴ Hence, exercise directed at one special Zang-fu organ is a characteristic of TCHE.

Baduanjin includes many actions with a regulatory effect on the relevant Zang-fu organ. “*Raising the hands upwardly to regulate Sanjiao*”, a stretching exercise of the four limbs and the body, helps regulate the upper, middle and lower Jiaos. “*Lifting singly to regulate the spleen and stomach*”, has traction actions on the upper and lower extremities, and can improve digestive function. “*Shaking head and swing buttock to remove heart fire*”, in which general head and neck rotation and waist/hip twisting are performed, can calm the heart and tranquilize the mind. “*Both hands catching the feet to strengthen waist and tonify kidney*”, an exercise of bowing forward and leaning backward, catching the feet, having the back and belly prone and turning the waist while looking backwards, can help to prevent and cure strains of the lumbar muscles and strengthen the kidney.

Tai Chi pays extreme attention to lumbar exercises, with the requirement of bowing the waist, contracting the hip and fixing the two feet strongly to make them stable following the relaxation of the waist. Strength changes are controlled by lumbar rotation. Furthermore, the Tai Chi theory of “treating the waist as a shaft” and the proverb of “practicing boxing without waist exercise just like doing gymnastics” emphasize the exercise mode of waist movement. Why are waist exercises being emphasized? According to TCM, “the waist is the house of kidney”, “kidney is the congenital root”, and “kidney contains essence”. So both the exercises and the clinical treatment pay more attention to the waist or the acupoint nearby.²⁵ By means of kidney strengthening exercises, the kidney essence will be abundant, so that the body can grow, develop, mature, and age²⁶ in a healthy manner.

5. The leading role of Qi in TCHE

Qi,²⁷ a unique concept of TCM theory, might appear lively as the white breath exhaled from the mouth in winter, and explains the structure of the human body and its activities in life. Human breath relies on “pectoral Qi”; alimentation relies on “stomach Qi”; growth and development relies on “kidney Qi”; immunological protection relies on “defensive Qi”, etc. Qi penetrates different corners of TCHE, and plays an important role. As early as the period of the Warring States, there was a description of Qi as: the way of promoting the circulation of Qi begins from breathing. Deep inhalation

contains a large amount of Qi. The Qi then extends after it arrives at a threshold, and stretches downward to become fixed and solid. And then exhale to make the Qi sprout and grow upward to arouse the movement of the Yin and Yang. The Yang moves upward and the Yin flows downward. You may get stronger by following the rule to exercise or get sick if you go against this rule (*Xing Qi Yu Pei Ming*). These words explain visually how to breathe when practicing respiring Daoyin to experience the mode of Qi flow in the body and to guide the Qi of the body correctly, which is important in respiring Daoyin.

TCHEs, such as Tai Chi, Baduanjin and so on, also require that the mind attentively concentrate on acupoints like Zusanli (ST36), Yongquan (KI1), and Mingmen (GV4).²⁸ On the basis of natural breathing, people should gradually adjust their breath to meet the requirement of “deep, long, thin and even”²⁹ to achieve the purpose of healing.³⁰

Liuzijue, a kind of breathing exercise in China passed down from ancient times, reinforces that the Qi plays an important role in health exercise. Abdominal respiration is required while practicing the exercise, as well as making the six sounds of “Xu, He, Hu, Si, Chui, Xi” respectively while exhaling. Simultaneously, one should contract the abdomen, lift the anus and contract the perineum, with the toes bending slightly to grasp the ground and placing the body’s weight on both heels. While inhaling with lips closed and tongue reaching the palate, one should breathe naturally through the nose and make the abdomen uplifted. Since moving lips and teeth with different forces can affect different organs and the circulation of Qi and blood in the meridians, this results in training of the organs, harmonizing the Qi and blood, and balancing the Yin and Yang.

6. The exercise prescription of TCHE

The exercise prescription aimed at personal health requires attention to the type of exercise, duration, intensity, frequency, scheduling, etc.³¹ Although there is no concept of exercise prescription in TCHE, it does have the most basic training requirements, for instance: “control the amount of exercise without taking too much exercise to cause over-tiredness and damage” (From *Qian Jin Yao Fang* by Simiao Sun in the Tang dynasty).

Compared with modern sport medicine exercise prescriptions, TCHE pays more attention to the prevention, rather than the treatment of injury. Patella damage and patellar tendon strains are the most common sports injuries with Tai Chi practitioners.^{32,33} In order to avoid these kinds of injuries, the correct postures and the main points for each action must be mastered, and the preparatory actions of the knee joints must be performed before beginning the practice of *Tai Chi*. If knee pain appears during the exercise, then the lower extremity load must be adjusted and the center of gravity should be lifted on time, and in some cases, the practice should be stopped. In addition, the quadriceps muscles should be shaken and the knee joints should be massaged to relax them after Tai Chi practice.³⁴

The proper use of Daoyin and coordination with TCM can recover physical capability after injuries. Knee osteoarthritis patients can enhance the power of their quadriceps and reduce patellar loading through Tai Chi forms practice, Tai Chi stances, and the hoisting stance.³⁵ Traditional Daoyin can also be used to treat knee pain. For instance, to treat right knee pain, hitting and patting the medial side of the right foot with the left fist with the appropriate strength for 1000 times should be performed (*vice versa* to treat left knee pain), and then catching the toes of the left (right) foot with the left (right) hand and pulling the toes backward for 10 times (*Yinshu* by Jiashan Zhang). Moreover, TCM believes that knee pain is related to the kidney, stomach, and gallbladder, which can be relieved by taking herbs to reinforce the kidney or by performing acupuncture on acupoints such as Yinlingquan (SP9), Yanglingquan (GB34), Xuehai (SP10), and Zusanli (ST36).³⁶

7. Proper timing of TCHE

TCHE attaches importance to the correspondence between humans and nature. It emphasizes the selection of proper, healthy, and protective exercises according to the rule that humans and nature are linked. For example, TCM believes that during winter mornings or in the early morning, one should wait until the sun rises in order to avoid “wind and cold” invasion. In the spring, one should sleep relatively late and get up early, take walks or strolls in the courtyard, loose the hair, and soothe the body, hence making the mind relaxed and free.

Liuzijue supports the idea that “Xu exercise can brighten the eyes in the spring, He exercise can protect the heart in the summer, Si exercise in the autumn and Chui exercise in the winter can moisten the lung and nourish the kidney, Hu exercise can improve the spleen and stomach digestive functions in all four seasons, and Xi exercise can clear away heat from the Sanjiao”. These are representative examples that highlight the use of different exercise methods in different seasons.

8. Holism and the balance of TCHE

TCHE pays attention to the harmony between humans and nature, exercise based on timing, and the selection of different seasonal exercises according to different body constitutions. TCM theory promotes raising the Yang Qi during spring and summer, nourishing the Yin in the fall and winter, and therefore the best exercise time for Yang deficient people is the spring and summer, and the rich sunshine morning of each day, but exercise at other times should be done indoors. They should keep warm and avoid the cold in winter, paying attention to boosting the Yang Qi during spring and summer, and not avoid the sunshine, which means getting more than 30 min of sunshine in the spring and summer. However, exercises on the sultry days of summer should be avoided for Yin deficient people.³⁷

TCM believes that the imbalance of Yin and Yang is one of the factors inducing the occurrence of disease. Once this balance is broken, either the organ or the body's function will be in sick.³⁸ That is why TCM often treats the disease through

regulating Yin and Yang.^{39,40} The balancing effects on the Yin and Yang of Tai Chi are achieved through a two-prong approach by suppressing excesses and supporting weakness.⁴¹ Tai Chi routines include the changes of moving—still, fast—slow, and rigid—flexible, which reflect the dynamic changes of the Yin and Yang,⁴² with one growing while the other declining. Grasping those dynamic changing principles in Tai Chi exercises will influence the human body's Yin and Yang.⁴³

In conclusion, TCHE encompasses the dual nature of exercise and medical treatment. Baduanjin, Liuzijue, and Tai Chi possess strong TCM characteristics. The concepts of Qi, meridians, and acupoints of TCM lay the foundation for TCHE, and the concept of holism and differential treatment affects its application in preventing and curing diseases.

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